What Is Claimed is:

1. A focusing-device for the radiation from a light source, comprising a collector mirror which is held by a mount and which collects the light from the light source at its focus, in virtual or real terms, wherein said collector mirror can be adjusted or displaced in said mount via a bearing in such a way that optical properties of the collector mirror remain at least approximately the same in the event of temperature changes.

2. The device as claimed in claim 1, wherein said bearing is designed in such a way that said collector mirror can be displaced at least perpendicular to the optical axis in the region of its bearing.

3. The device as claimed in claim 1, wherein said mount is designed as a mounting ring in which said collector mirror with its bearing is held.

4. The device as claimed in claim 3, wherein a plurality of bearings are arranged, distributed over the circumference, in strengthening ribs of said mounting ring.

5. The device as claimed in claim 3, wherein the bearings of the collector mirror are provided with elements which permit movements of said collector mirror perpendicular an optical axis.

6. The device as claimed in claim 5, wherein said elements are designed as active adjusting units.

7. The device as claimed in claim 1, wherein said collector mirror is designed as a shell collector according to the transmitted-light system with one or more annular shells arranged at a radial distance from one another.

8. The device as claimed in claim 7, wherein said annular shells are held jointly in bearings on a mount designed as a mounting ring.

9. The device as claimed in claim 8, wherein said annular shells are held in each case on one side on said mounting ring, and can be displaced in each case in the direction of the optical axis at an end not connected to said mounting ring.

10. The device as claimed in claim 9, wherein said annular shells are held on said mounting ring on said side averted from the light source.

11. The device as claimed in claim 8, wherein between said two ends the annular shells are connected to said mounting ring in a fashion respectively moveable in a radial direction, the two ends of said annular shells being respectively displaceable in the direction of the optical axis.

12. The device as claimed in claim 8, wherein said annular shells are respectively supported by their bearings in radial strengthening ribs of said mounting ring.

13. The device as claimed in claim 8, wherein said bearings are situated parallel to the optical axis, the size of the bearings being selected in a direction perpendicular to the optical axis to be so large that said annular shells held in the bearings are displaceable in a direction perpendicular to the optical axis.

14. The device as claimed in claim 12, wherein one or more strengthening ribs arranged distributed over the circumference are provided.

15. The device as claimed in claim 14, wherein four

strengthening ribs are arranged distributed uniformly over the circumference.

16. The device according to claim 12, wherein said mounting ring is provided with cutouts in the region where the strengthening ribs are joined to the mounting ring.

17. The device as claimed in claim 16, wherein said cutouts are designed as slots which run in the circumferential direction of the mounting ring.

18. The device as claimed in claim 17, wherein the length of said slots corresponds to the multiple of the rib thickness of said strengthening ribs.

19. The device as claimed in claim 8, wherein said annular shells are respectively held at their ends projecting into said bearings in a bearing part which is displaceable perpendicular to the optical axis.

20. The device as claimed in claim 19, wherein said bearing part is provided with elements which permit movements of the annular shells perpendicular to the optical axis.

21. The device as claimed in claim 20, wherein a parallelogram is provided as said element, one end of the parallelogram being connected to said bearing part, and the other end of said parallelogram being connected to said mounting ring in the region of said strengthening ribs.

22. The device as claimed in claim 21, wherein said bearing part and said parallelogram are of monolithic design.

23. The device as claimed in claim 22, wherein said bearing part, the parallelogram and the mounting ring

having said strengthening ribs are of monolithic design.

24. The device as claimed in claim 20, wherein said element has a linear guide with a guide which is connected to said bearing part, said guide being linearly displaceable in a bearing pin or a linear guide which is supported in said mounting ring.

25. The device as claimed in claim 20, wherein by means of cuts introduced into said annular shells the annular shells respectively form at connecting points with said mounting ring leaf springs via which the annular shells are connected to the mounting ring.

26. The device as claimed in claim 25, wherein two cuts which are arranged at a spacing from one another in a fashion running parallel to the optical axis and between which said leaf springs are formed are provided in said annular shells.

27. The device as claimed in claim 25, wherein provided for each bearing for the purpose of forming a leaf spring is a cut parallel to the optical axis and a cut running in the circumferential direction.

28. The device as claimed in claim 20, wherein provided for the purpose of connecting said annular shells to said mounting ring are leaf springs which are fitted on the circumference of said annular shells and are respectively connected at one end to the annular shells and are respectively connected at the other end to said mounting ring.

29. The device as claimed in claim 8, wherein said bearings are provided with active adjusting units.

30. The device as claimed in claim 29, wherein said active adjusting units comprise piezoelectric elements.

31. The device as claimed in claim 29, wherein said active adjusting units comprise electric or electromagnetic adjusting units.

32. The device as claimed in claim 29, wherein said active adjusting units comprises hydraulic or pneumatic units.

33. The device as claimed in claim 29, wherein said active adjusting units have plungers which are designed to be variable in length.

34. The device as claimed in claim 33, wherein said plungers are of telescopic design.

35. The device as claimed in claim 20, wherein said bearing part is designed as a thermal actuator, or is provided with a thermal actuator, the thermal actuator being preselected with reference to material and coefficient of thermal expansion in conjunction with its length in such a way that said annular shells execute displacements perpendicular to the optical axis in the event of temperature changes.

36. The device as claimed in claim 35, wherein said thermal actuator is designed as a separate part which acts on the bearing part.

37. The device as claimed in claim 1, wherein a plasma source is provided as light source.

38. The projection exposure machine with an illuminating system in semiconductor lithography, having a light source and a collector mirror which is held by a mount and which collects the light from the light source at its focus, in virtual or real terms, wherein said collector mirror can be adjusted or displaced in said mount via a bearing in such a way that optical proper-

ties of the collector mirror remain at least approximately the same in the event of temperature changes.

39. The projection exposure machine as claimed in claim 38, wherein said light source is designed as a plasma source for EUV radiation.

40. The projection exposure machine as claimed in claim 38, wherein said collector mirror is designed as a shell collector according to the transmitted-light system with a plurality of annular shells arranged at a radial distance from one another.

41. The projection exposure machine as claimed in claim 40, wherein said annular shells are respectively supported in bearings in the mount designed as a mounting ring.

42. The projection exposure machine as claimed in claim 41, wherein said annular shells are held in each case on one side on said mounting ring and can be displaced in each case at an end averted from said mounting ring in the direction of the optical axis.

43. The projection exposure machine as claimed in claim 41, wherein said annular shells are respectively supported by their bearings in radial strengthening ribs of said mounting ring.

44. The projection exposure machine as claimed in claim 41, wherein said bearings are situated parallel to the optical axis, the size of the bearings being selected in a direction perpendicular to the optical axis to be so large that said annular shells held in the bearings are displaceable in a direction perpendicular to the optical axis.

45. The projection exposure machine as claimed in claim 43, wherein one or more strengthening ribs ar-

ranged distributed over the circumference are provided.

46. The projection exposure machine as claimed in claim 43, wherein said mounting ring is provided with cutouts in the region where the strengthening ribs are joined to said mounting ring.

47. The projection exposure machine as claimed in claim 46, wherein said cutouts are designed as slots which run in the circumferential direction of said mounting ring.

48. The projection exposure machine as claimed in claim 41, wherein said annular shells are respectively held at their ends projecting into said bearings in a bearing part which is displaceable perpendicular to the optical axis.

49. The projection exposure machine as claimed in claim 48, wherein said bearing part is provided with elements which permit movements of said annular shells perpendicular to the optical axis.

50. The projection exposure machine as claimed in claim 41, wherein said bearings are provided with active adjusting units.